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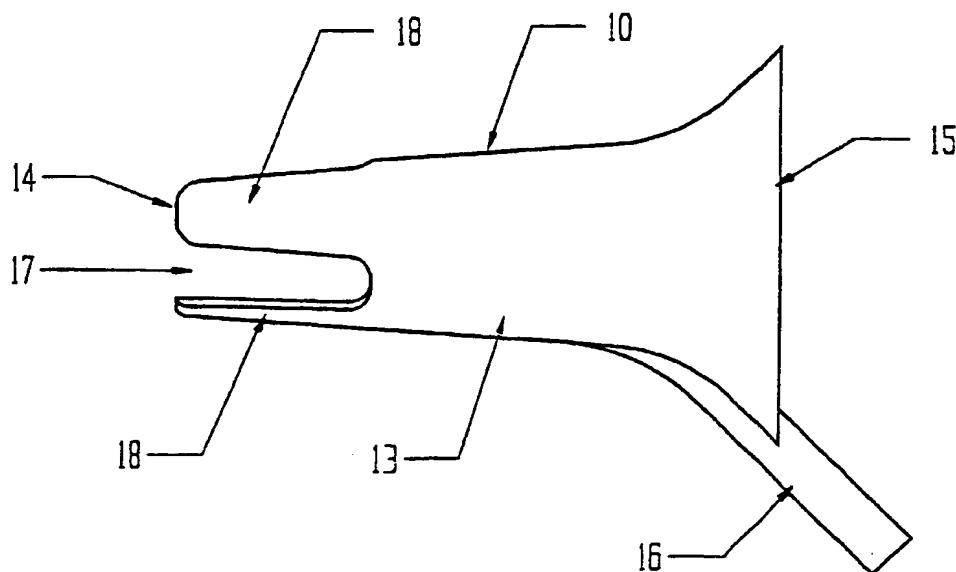
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[Continued on next page]

(54) Title: ANAL SPECULUM



(57) Abstract: An anal speculum for use in the surgical treatment of haemorrhoids comprises a transparent plastics tubular probe adapted to be inserted into the anus of a patient. The probe has a tapered body (13), a leading end (14) having three bights (17) formed therein spaced apart by tongues (18), a flared trailing end skirt (15) and an optical conductor (16) extending as a cantilever therefrom. That conductor may extend into an illuminated socket in a handle whereby the speculum may be manipulated and the visibility of haemorrhoids exposed within the bights is enhanced. A tapered tubular introducer (11) to assist in the insertion of the speculum into the anus, is also disclosed.

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For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

ANAL SPECULUM

Technical Field

This invention relates to anal speculums for use by
5 surgeons in the treatment of haemorrhoids.

Background art

Prior known speculums for that purpose have comprised a
tubular probe, for insertion into the anus, wherein a hole
pierces the tube wall of the probe near its front or leading
10 end. When using those prior known speculums a surgeon had to
align the probe, before insertion, with a haemorrhoid to be
treated and then insert the probe to a depth enabling access
through the hole to the haemorrhoid in question. This has
been an awkward procedure and requires retraction and
15 reinsertion of the probe one or more times in the event that
one or more further haemorrhoids require to be treated at the
one treatment session. This is objectionable not only for
the surgeon, because of the difficulty in correctly aligning
and inserting the probe and working with limited access to
20 the, or each haemorrhoid, but also for the patient, because
each insertion is accompanied by a degree of discomfort, if
not actual pain.

Disclosure of invention

An object of the invention is to alleviate the objectionable features of the prior art speculums referred to above.

5 The invention consists in an anal speculum of the kind comprising a tubular probe adapted to be inserted into the anus of a patient, characterised in that a leading end face of the tubular probe has two or more bights formed therein.

In preferred embodiments there are three such bights
10 equiangularly spaced apart and dimensioned such that the open mouths of the bights together constitute at least 50% of the circumference of the leading end face of the probe. Thus, when a said preferred embodiment is used, frequently a single insertion will suffice, and at most no more than two
15 insertions are needed, to pick up all of a patient's haemorrhoids for treatment.

For preference each such bight may be tapered to some extent, such that its side edges converge from a widest portion at the mouth of the bight.

20 When the bights are tapered as aforesaid and the probe is inserted, any haemorrhoid or swollen vein needing treatment within the ambit of the wide open, leading end of any bight is guided by one or other or both side edges of the bight to

a position at or near the narrower trailing end of the bight, where it may be treated by injection or ligation.

For preference the probe is a disposable item, able to be easily fixed to a conventional handle. The probe may thus be
5 discarded after a single use. Also it is preferably transparent to enable light from a light source constituting part of the handle to illuminate the bowel wall and inner anus, so as to provide good visibility for the surgeon.

Brief description of the drawings

10 By way of example, an embodiment of the above-described invention is described in more detail hereinafter with reference to the accompanying drawings.

Figure 1 is a side elevation of an anal speculum according to the invention in combination with a handle and
15 introducer.

Figure 2 is a view similar to figure 1 of the combination of that figure with the tubular probe and introducer shown in longitudinal-section.

Figure 3 is a side elevation of the speculum appearing in
20 of Figure 1 drawn to an enlarged scale.

Figure 4 is a longitudinal-sectional view of the speculum of figure 3.

Figure 5 is a front end elevation of the speculum of Figure 3.

Figure 6 is a rear end elevation of the speculum of figure 3.

Figure 7 is a plan view of the speculum of figure 3

Figure 8 is a longitudinal-sectional view of the
5 introducer appearing in figure 1.

Figure 9 is a side elevation of the introducer of figure 8

Best mode of carrying out the invention

The combination illustrated by figures 1 and 2 comprises
10 a speculum 10 according to the invention, an introducer 11 and a handle 12. The speculum 10 is a one-piece moulding of a rigid transparent plastics material. It comprises a tubular body 13 having a leading end 14, a trailing, flared skirt 15 and an optical conductor 16 extending as a
15 cantilever from the skirt 15.

In accordance with the invention the leading end 14 has a leading end face characterised by three, in this instance slightly tapering, elongate bights 17 equiangularly spaced apart by tongues 18 of arcuate cross-section.

20 As indicated earlier those bights 17 are adapted to pick up haemorrhoids which are guided by the side edges of the tongues 18 into the narrower, trailing ends of the bights where they may be readily accessed by a surgeon through the

skirt 15 and the bore of the tubular body 13 using well known and conventional surgical implements and procedures.

To facilitate insertion of the speculum 10 into and through the anus of a patient an introducer 11 may be used, and the present invention includes such an introducer and its use in conjunction with the speculum. The introducer 11 comprises a tapered tube having a smoothly rounded leading end 19 pierced by a small vent hole 20 and an enlarged, open, trailing skirt 20 which (see figure 2), comes into abutment with the inner surface of the leading end of the skirt 15. As may be seen from Figures 1 and 2 the introducer 11 is dimensioned so that it may extend neatly through the speculum 10 until its rounded leading end 19 protrudes from the leading end of the speculum.

Following lodgment of the introducer 11 within the speculum 10, insertion of the speculum through the anus may be effected by manual pressure on the protruding trailing end of the introducer 17. Once insertion has been accomplished the introducer 11 may be withdrawn from the inserted speculum for disposal or sterilisation and re-use.

The handle 12 is a conventional item readily available from surgical instrument supply houses. It is in the nature of an electric torch, having a cylindrical body adapted to house replaceable batteries and a switch (not shown) in a

circuit for the energisation of a small but high-powered light bulb. The bulb is disposed at the inner end of a cylindrical socket in an end of the handle into which the optical conductor 16 is a tight but manually separable fit.

5 Thus the conductor 16 may simply be thrust into the socket to enable the handle not only to function as such for manipulation of the speculum as a whole but also to provide illumination at the site of the haemorrhoids being treated.

Claims

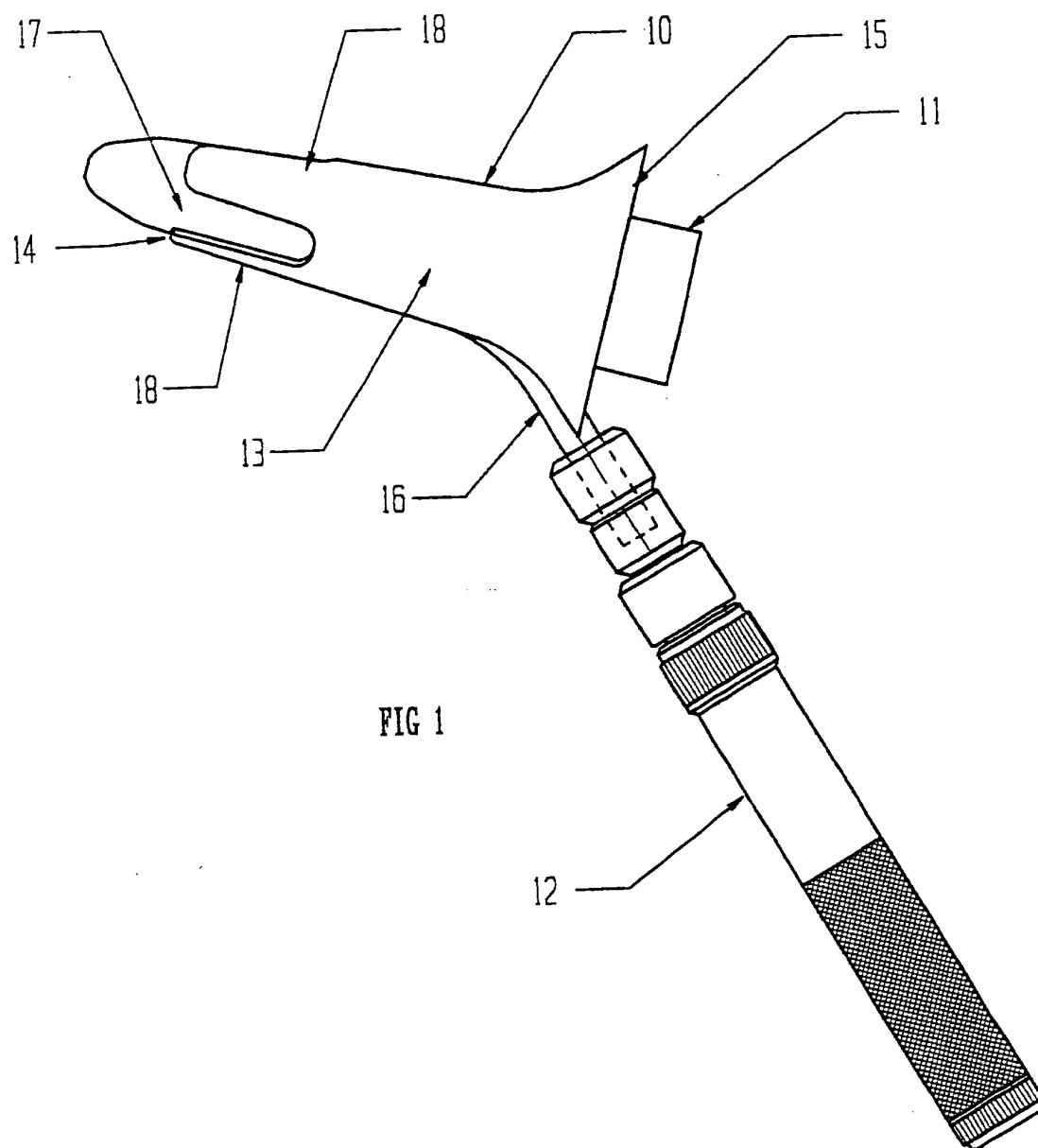
1. An anal speculum of the kind comprising a tubular probe adapted to be inserted into the anus of a patient, characterised in that a leading end face of the tubular probe
5 has two or more bights formed therein.
2. A speculum according to claim 1 wherein the bights equiangularly spaced apart and dimensioned such that the open mouths of the bights together constitute at least 50% of the
10 circumference of the leading end face of the probe.
3. A speculum according to claim 1 wherein each said bight is tapered, such that its side edges converge from a widest portion at the mouth of the bight.
15
4. A speculum according to claim 3 wherein there are three bights equiangularly spaced apart and dimensioned such that the open mouths of the bights together constitute at least 50% of the circumference of the leading end face of the
20 probe.
5. A speculum according to any one of the preceding claims wherein said probe is formed from transparent material and further comprises a cantilever optical conductor, in

combination with a handle including a socket and means to illuminate said socket, wherein said conductor is insertable into said socket for demountable attachment to the handle and the transmission of light into and along the material of the
5 tubular probe to the leading end thereof.

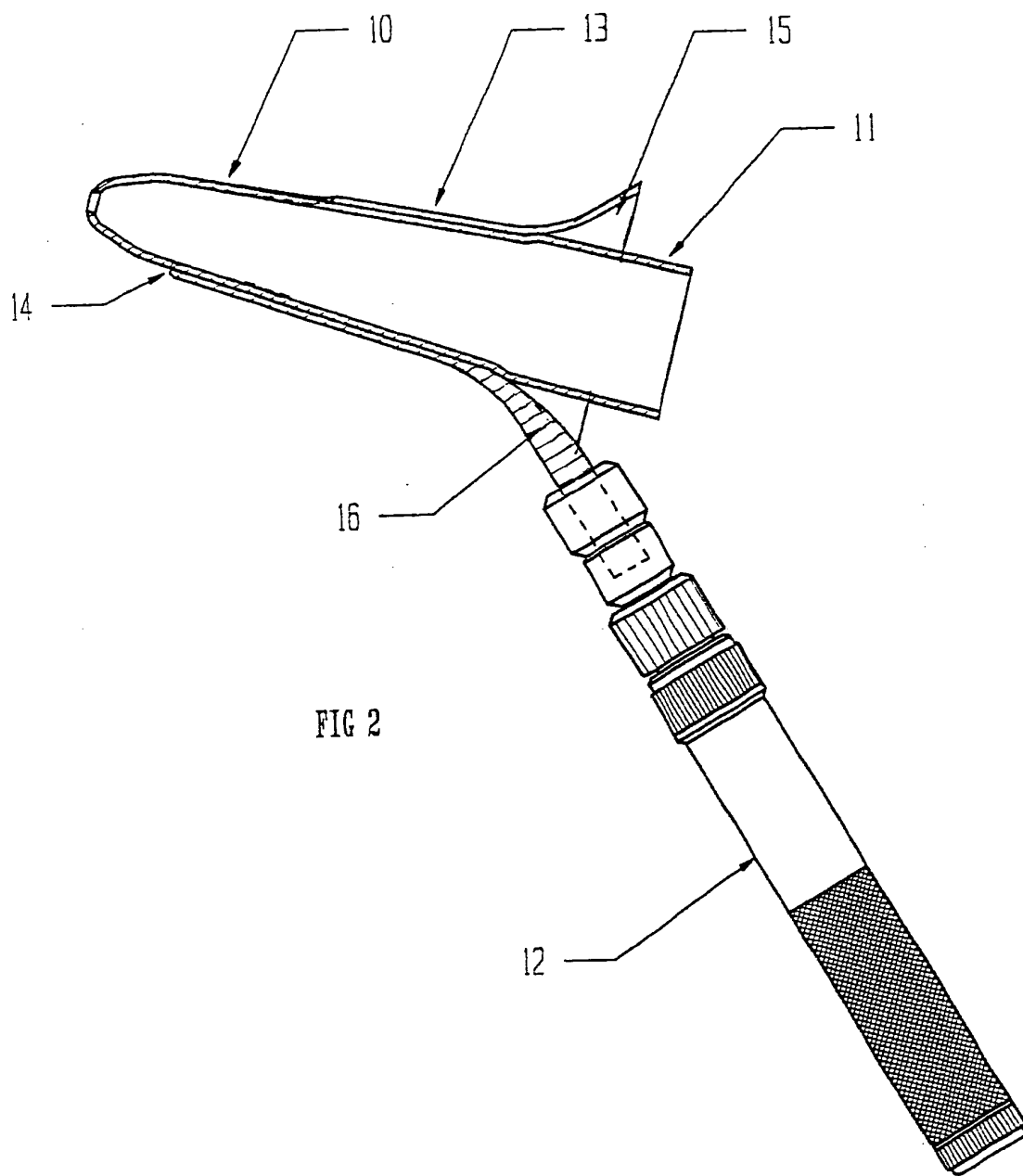
6. A speculum according to any one of claims 1 to 4 in combination with an introducer comprising a tapered cylindrical body having a rounded leading end and a vent hole
10 in said leading end in communication with a trailing end of the introducer, wherein said introducer may be inserted into the trailing end of the bore of the tubular probe to a distance such that the leading end of the introducer then protrudes from the leading end of the probe as a smooth
15 extension thereof.

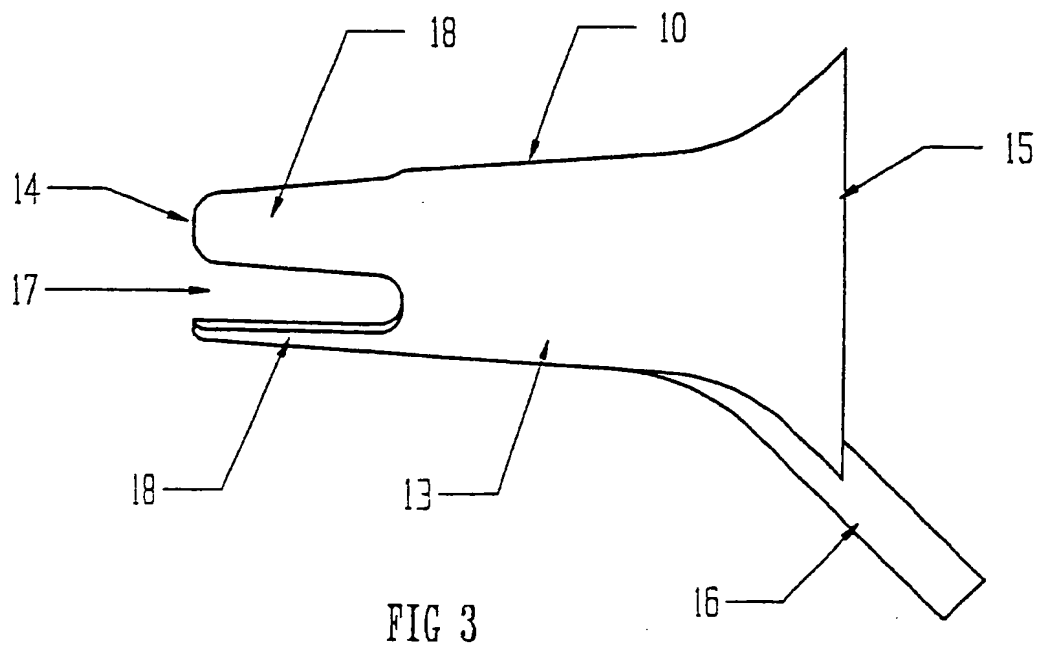
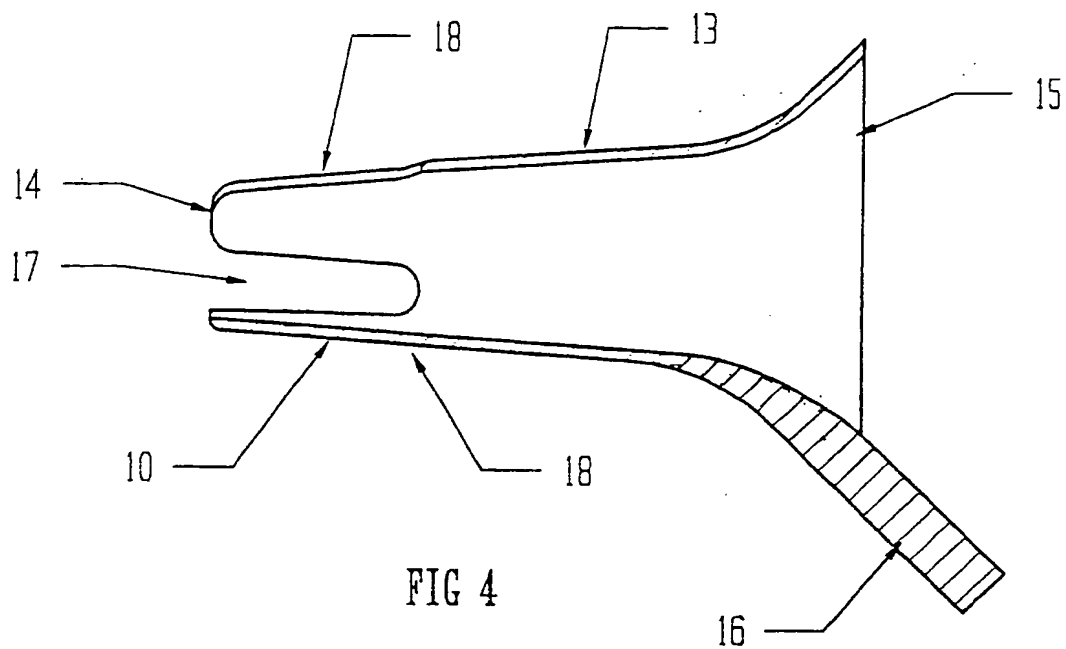
6. An anal speculum substantially as described herein with reference to the accompanying drawings.

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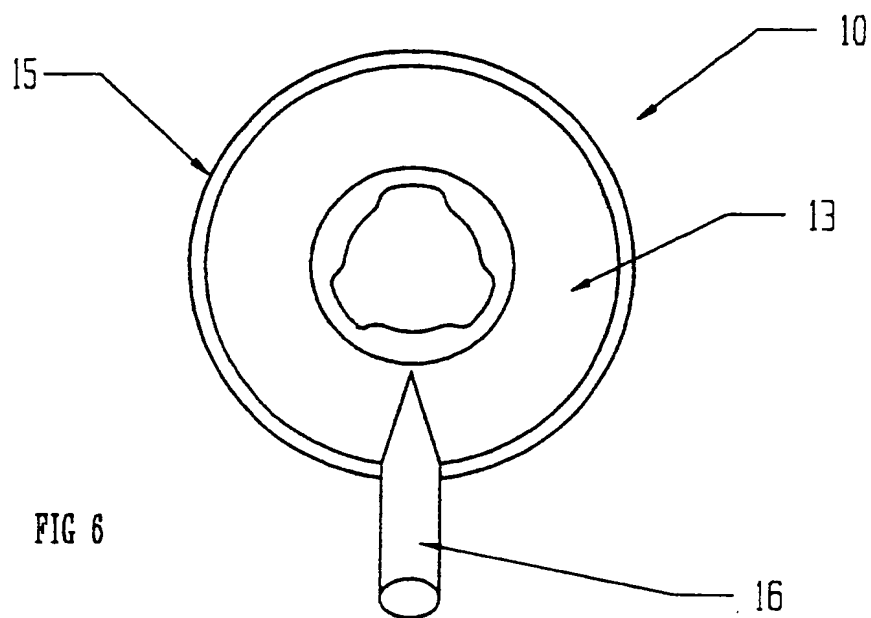
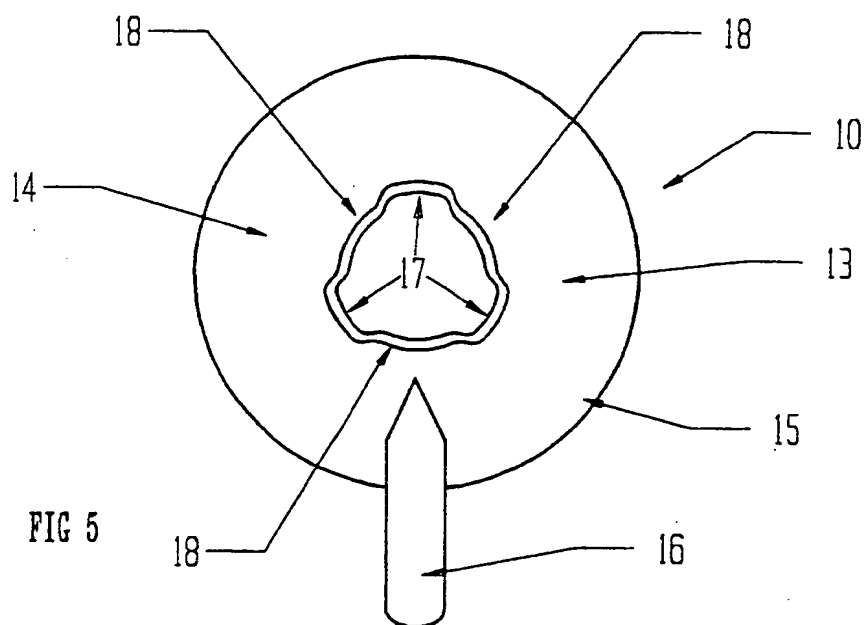


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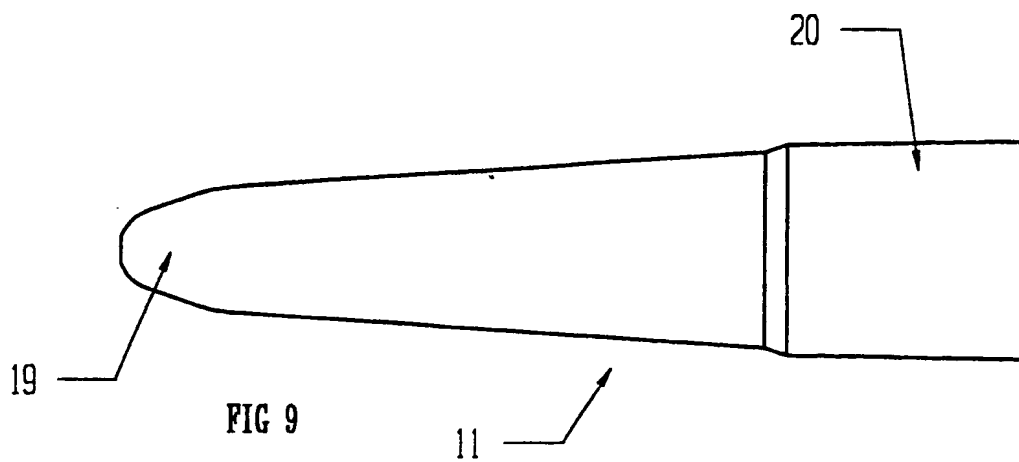
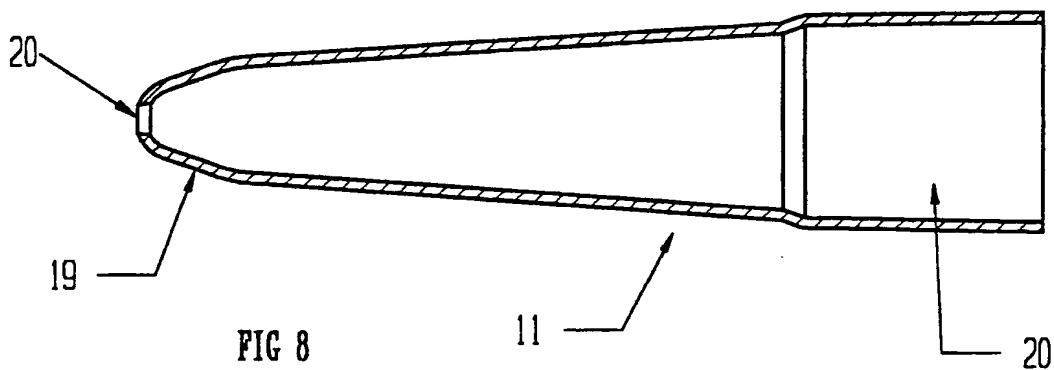
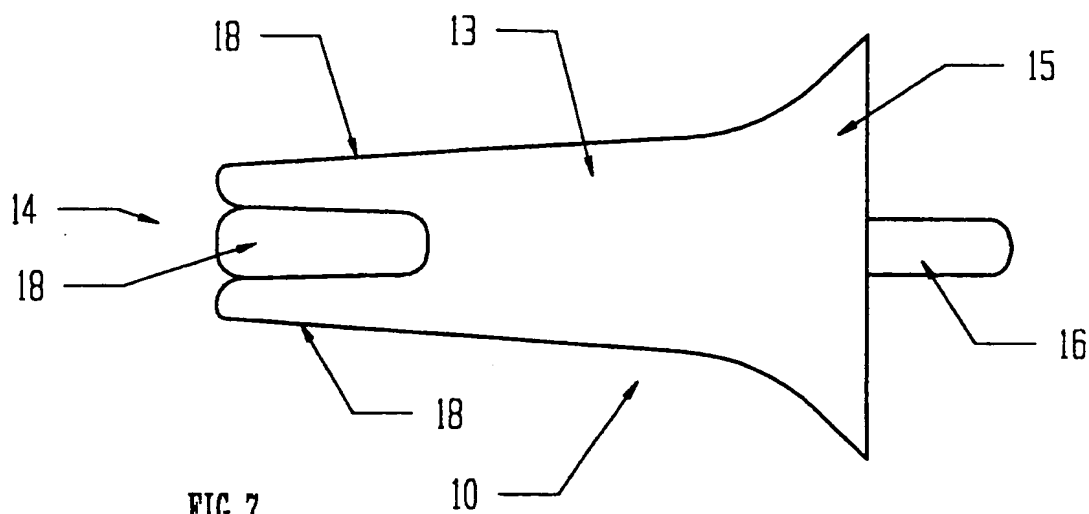




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INTERNATIONAL SEARCH REPORT

International application No.

PCT/AU00/01526

A. CLASSIFICATION OF SUBJECT MATTERInt. Cl. ⁷: A61B 1/31

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC : A61B A61M

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

AU IPC A61B 1/30, 1/31, 1/32, 1/303

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

DWPI JAPIO : speculum speculae dilation dilate anus rectal rectum sphincter haemorrhoid tube tubular pipe piping cylinder

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	DE 3717607 A1 (ELKE-TECHNIK FRITZ KERNER GmbH & Co KG) 8 December 1988 Figure 3	1-6
X	US 4834067 A (BLOCK) 30 May 1989 Entire document	1-6
X	US 5176630 A (SHILLING et al) 5 January 1993 Entire document	1-6

☒ Further documents are listed in the continuation of Box C ☒ See patent family annex

<p>* Special categories of cited documents:</p> <p>"A" document defining the general state of the art which is not considered to be of particular relevance</p> <p>"E" earlier application or patent but published on or after the international filing date</p> <p>"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)</p> <p>"O" document referring to an oral disclosure, use, exhibition or other means</p> <p>"P" document published prior to the international filing date but later than the priority date claimed</p>		<p>"T" Later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention</p> <p>"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone</p> <p>"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art</p> <p>"&" document member of the same patent family</p>
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Date of the actual completion of the international search

21 February 2001

Date of mailing of the international search report

1 March 2001

Name and mailing address of the ISA/AU

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INTERNATIONAL SEARCH REPORT

International application No.

PCT/AU00/01526

C (Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT		
Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 5404870 A (BRINKERHOFF et al) 11 April 1995 Entire document	1-6
P,X	US 6126594 A (BAYER) 3 October 2000 Entire document	1-6
A	EP 095142 A2 (BRUHL et al) 30 November 1983	
A	US 4712536 A (HAWKS) 15 December 1987	

INTERNATIONAL SEARCH REPORT

International application No.

PCT/AU00/01526

Box I Observations where certain claims were found unsearchable (Continuation of item 2 of first sheet)

This international search report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:

1. ☒ Claims Nos : 6 (second instance)
because they relate to subject matter not required to be searched by this Authority, namely:
The noted claim depends upon the description and drawings to define the invention and is not in accord with Rule 6.2(a) of the PCT.
2. ☐ Claims Nos :
because they relate to parts of the international application that do not comply with the prescribed requirements to such an extent that no meaningful international search can be carried out, specifically:
3. ☐ Claims Nos :
because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a)

Box II Observations where unity of invention is lacking (Continuation of item 3 of first sheet)

This International Searching Authority found multiple inventions in this international application, as follows:

1. ☐ As all required additional search fees were timely paid by the applicant, this international search report covers all searchable claims
2. ☐ As all searchable claims could be searched without effort justifying an additional fee, this Authority did not invite payment of any additional fee.
3. ☐ As only some of the required additional search fees were timely paid by the applicant, this international search report covers only those claims for which fees were paid, specifically claims Nos.:
4. ☐ No required additional search fees were timely paid by the applicant. Consequently, this international search report is restricted to the invention first mentioned in the claims; it is covered by claims Nos.:

Remark on Protest

- ☐ The additional search fees were accompanied by the applicant's protest.
- ☐ No protest accompanied the payment of additional search fees.

INTERNATIONAL SEARCH REPORT
Information on patent family members

International application No.
PCT/AU00/01526

This Annex lists the known "A" publication level patent family members relating to the patent documents cited in the above-mentioned international search report. The Australian Patent Office is in no way liable for these particulars which are merely given for the purpose of information.

Patent Document Cited in Search Report		Patent Family Member					
US	5176630	AU	41653/89	CA	1329080	DE	3931730
		FR	2636536	GB	2224212	IT	1236832
		JP	2-144072				
EP	095142	DE	3318257				
END OF ANNEX							